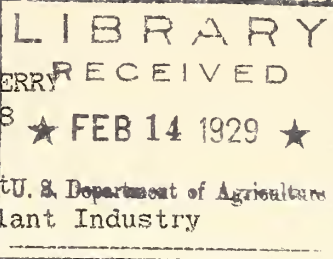


Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

119
P. B. A. N. B.
1928

A DIGEST OF THE ANNUAL REPORT OF THE BARBERRY
ERADICATION CAMPAIGN IN NEBRASKA, 1928



By A. F. Thiel, Associate Pathologist
Office of Cereal Crops and Diseases, Bureau of Plant Industry
U. S. Department of Agriculture 1/

Introduction

Common barberry, spreads stem rust to wheat, oats, barley, rye, and seventy-five known wild and cultivated grasses. Stem rust is one of the most destructive grain diseases and causes enormous losses to the grain growers of the United States. The average loss in dollars from this source for Nebraska for the past twelve years is estimated at \$2,500,000 annually.

Barberry eradication will eliminate all spore material of stem rust which gets its start from the barberry in the spring. It is believed that, dependent on season, this will materially decrease or eliminate the recurring losses due to stem-rust epidemics. The results already obtained in many of the States in the barberry eradication area indicate that in localities where barberries have been completely eradicated, stem-rust losses have been reduced.

The Barberry Eradication Campaign in Nebraska was begun in the spring of 1918. Since that time the total number of bushes which were found has increased until 132,744 barberry bushes have been destroyed on 4,158 properties.

Organization and Personnel

The Barberry Eradication Campaign in Nebraska is directed by a State Leader with headquarters at the Agricultural College, Lincoln, Nebraska. His work is under the supervision of the Office of Cereal Crops and Diseases, Bureau of Plant Industry, United States Department of Agriculture, in cooperation with the Nebraska Agricultural College Extension Service. The Conference for the Prevention of Grain Rust at Minneapolis, Minnesota, whose members are composed of individuals interested in crop improvement, cooperates in the campaign.

From fifteen to twenty men are employed in Nebraska for a period of three and one-half months each summer. The men are selected from the student bodies of the University of Nebraska and other colleges of the State. As a rule it is the practice to hire men who have had from two to four years of college training and who have made a special study of plants. The men are thoroughly trained in a barberry school under the supervision of the State Leader before they begin work.

1/ State Leader of Barberry Eradication in Nebraska.

Financing

Most of the funds for the Barberry Eradication Campaign have come from the Federal government. A majority of the States in which the work is being carried on have had substantial State appropriations to support the Federal funds. In Nebraska all of the funds have come from the Federal Government. However, considerable indirect aid has been given by the Nebraska Agricultural Experiment Station, the Extension Service, and other institutions and organizations.

The total cost to the Government for finding and destroying 132,744 barberry bushes during the past eleven years in Nebraska has been less than \$1.75 per farm. On the other hand, a conservative estimate of the annual stem-rust losses in Nebraska would be at least \$30 per farm for the same period.

Summary of Surveys, 1918-1928

First Survey

The first survey for the common barberry in Nebraska was begun in the spring of 1918 and was completed in the fall of 1923. On this first survey the farmsteads were visited and the vegetation around the farm buildings was searched for common barberry bushes. No inspection was made of adjacent groves, orchards, fence rows, or native woods, unless fruiting barberry bushes were found on the farmstead. It took six years to complete this first survey, and during this time 89,712 barberry bushes were found on 3,619 properties. In this rapid survey a large number of bushes were destroyed, thus preventing them from spreading rust and eliminating the possibility of further seed distribution.

Second Survey

The second survey has been in progress since 1923. The second survey is a more intensive type of survey. It is the second property-by-property survey of all the cities, towns, villages, and farms in a given territorial unit. On the first survey only the barberry bushes planted around the farm buildings were found and destroyed. No attempt was made to locate those bushes which had escaped from cultivation. In the more intensive second survey, however, a careful search for barberry bushes is made in orchards, native woods, planted groves, and fence rows.

A total of 32½ counties have been covered on second survey, and 6,329 barberry bushes have been found and destroyed on 418 properties. (Map #1.)

Resurvey

A resurvey is a reinspection of properties on which barberry bushes were found on previous surveys. This survey is necessary in order to destroy any sprouting bushes or any new bushes which may have come up from seeds scattered by birds and other agencies. A resurvey is made whenever necessary, and as a result of this activity 16,879 sprouting bushes have been found and destroyed since the beginning of the campaign.

During the eleven years of barberry eradication in Nebraska, a grand total of 132,744 barberry bushes, sprouting bushes, and seedlings were found and destroyed on 4,158 properties. (See map #2.)

Summary of all Activities. 1928

Surveys

The major phase of the Barberry Eradication Campaign for 1928 was the second survey. During the three and one-half summer months, eighteen field men made an intensive survey for barberries in Nance, Merrick, Hamilton, and parts of York and Hall Counties. A resurvey was made in Butler, Polk, and Saunders Counties and in one-fourth of Cuming County. A total of 635 barberry bushes and 1,026 seedlings was found on 52 properties as a result of all survey activities during 1928.

Educational and Publicity Activities

The barberry educational and publicity work was again emphasized during the year. The purpose of the educational work is to teach the pupils and students the characters of the common barberry and the relation of barberry to stem rust, and to report the location of all known bushes. A total of 3,024 educational institutions were supplied with barberry literature, stem rust specimens, rusted barberries, and study plans. Publicity material to the extent of 236 news articles was published in weekly and daily papers, including articles sent to local magazines and to the United Press. A total of 26,500 bulletins and circulars, 22,700 pieces of mimeographed material, and approximately 20,000 miscellaneous pieces was sent to schools, farmers, and other interested people, during the year. Demonstrations were conducted at three fairs, radio talks were given four different times, illustrated lectures were given at six colleges, and displays were placed in seventeen store windows.

Investigations

As in previous years, a stem-rust survey was made of the State during the early season. Daily observations were made for the first appearance of rust on barberries, the spread of rust from barberries, and

the first appearance of stem rust not directly traceable to barberries. This work usually begins during the last week in April and continues until harvest. This office, likewise, cooperates with the Plant Pathology Department of the University of Nebraska in making a study of the physiologic forms of stem rust of wheat in Nebraska. Over 150 specimens of rusted material were collected from representative sections of the State. During the winter months the specific physiologic forms present in the State are identified from the collected material.

Rust Spreads from Barberries

Every year excellent examples of the spread of stem rust from barberries to grains and grasses have been found by the field men. A few of these cases are mapped and placed in the files of this office. During 1928, two detailed diagrams showing rust spreads were obtained. (See Diagram 1.) Instances of the spread of rust from barberries are frequently noticed by farmers on whose property the offending bushes are found.

Conclusions

The common barberry is necessary for the completion of the life cycle of stem rust and spreads rust to wheat, oats, barley, rye, and about seventy-five known grasses.

Unless fruiting barberry bushes are destroyed there will be an increase in numbers through seeds which are being scattered by birds and other agencies.

Every citizen of the State should assist the authorities in attempting to eradicate this menace by reporting the location of all barberry bushes to the Agricultural Experiment Station, Lincoln, Nebraska.